

WHAT IS CLAIMED IS:

1. A method comprising the steps of:

(a) outputting an optical signal having a chirping determined by a chirp parameter to an optical fiber transmission line;

(b) converting the optical signal transmitted by said optical fiber transmission line into an electrical signal;

(c) detecting a bit error of said electrical signal; and

(d) controlling said chirp parameter so that said bit error detected is reduced.

2. A method according to claim 1, wherein said step (d) includes the step of switching the sign of said chirp parameter.

3. A method according to claim 2, wherein:

said step (a) includes the step of generating said optical signal by optical modulation using a Mach-Zehnder optical modulator; and

said step (d) includes the step of switching an operating point of said Mach-Zehnder optical modulator.

4. A method according to claim 1, wherein said step (a) includes the step of adjusting said chirp parameter to an optimum value so that said bit error

detected is minimized.

5. A method according to claim 4, wherein:

said step (a) includes the step of generating said optical signal by optical modulation using an electroabsorption optical modulator; and

said step (d) includes the step of changing a bias voltage to be applied to said electroabsorption optical modulator.

6. A method according to claim 1, wherein:

said step (a) includes the step of generating said optical signal by optical modulation based on a modulating signal obtained by adding a redundancy code to a transmission data code;

said method further comprises the step of correcting said bit error of said electrical signal according to said redundancy code; and

said step (c) includes the step of counting the number of corrections of said bit error obtained in said correcting step.

7. A system comprising:

first and second terminal devices; and

an optical fiber transmission line connecting said first and second terminal devices;

said first terminal device comprising an optical

transmitter for outputting an optical signal having a chirping determined by a chirp parameter to said optical fiber transmission line, and a control unit for controlling said chirp parameter according to a control signal;

said second terminal device comprising an optical receiver for converting the optical signal transmitted by said optical fiber transmission line into an electrical signal, a monitor unit for detecting a bit error of said electrical signal, and means for transmitting supervisory information on said bit error detected to said first terminal device;

whereby said control signal is generated in said first terminal device so that said bit error detected is reduced.

8. A system according to claim 7, wherein:

said optical transmitter comprises a light source for outputting continuous wave (CW) light, and a Mach-Zehnder optical modulator for modulating said CW light to generate said optical signal; and

said control unit includes means for switching an operating point of said Mach-Zehnder optical modulator, thereby switching the sign of said chirp parameter.

9. A system according to claim 7, wherein:

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said optical transmitter comprises a light source for outputting continuous wave (CW) light, and an electroabsorption optical modulator for modulating said CW light to generate said optical signal; and

said control unit includes means for changing a bias voltage to be applied to said electroabsorption optical modulator, thereby adjusting said chirp parameter to an optimum value so that said bit error detected is minimized.

10. A system according to claim 7, wherein:

said optical transmitter comprises a light source for outputting continuous wave (CW) light, an encoder for adding a redundancy code to a transmission data code to thereby generate a modulating signal, an optical modulator for modulating said CW light according to said modulating signal to thereby generate said optical signal;

said optical receiver includes a decoder for correcting said bit error of said electrical signal according to said redundancy code; and

said monitor unit includes means for counting the number of corrections of said bit error obtained by said decoder.

11. A system according to claim 7, wherein:

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12. A system according to claim 7, wherein:
said second terminal device further comprises an optical amplifier for amplifying the optical signal to be received by said optical receiver.

said first terminal device further comprises an optical amplifier for amplifying the optical signal output from said optical transmitter.

13. A system according to claim 7, wherein said optical fiber transmission line is provided by a dispersion shifted fiber having a zero-dispersion wavelength near $1.55\mu\text{m}$.

14. A system according to claim 7, wherein said optical fiber transmission line is provided by a single-mode fiber having a zero-dispersion wavelength near $1.3\mu\text{m}$.

15. A system according to claim 14, wherein said first terminal device further comprises a dispersion compensating fiber for compensating for chromatic dispersion occurring in said optical fiber transmission line, and an optical amplifier for amplifying the optical signal output from said optical transmitter.

16. A terminal device comprising:
an optical transmitter for outputting an optical signal having a chirping determined by a chirp parameter to an optical fiber transmission line;

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means for receiving supervisory information on a
bit error detected in relation to the optical signal
transmitted by said optical fiber transmission line; and

means for controlling said chirp parameter
according to said supervisory information so that said
bit error detected is reduced.